

LISTING OF THE CLAIMS

Claims 1-8 are pending. Claims 9-18 were previously withdrawn. No claims are amended, added, or canceled.

The following listing of claims replaces all prior versions and listings of claims in the application.

1. (Original) A middleware communication space enabling coordination of one or more distributed applications in a partially connected ad hoc wireless network, the middleware comprising:

a proxy component configured to receive data from the one or more distributed applications;

a protocol agent coupled to the proxy component, the protocol agent configured to monitor metadata for transport and to govern transport of messages in the partially connected ad hoc network; and

a metadata storage component coupled to the proxy component and the protocol agent, the metadata storage component configured to store metadata capable of being transported as a message according to the one or more distributed applications, the middleware communication space providing a bridge between two or more partially-connected networks, the bridge enabling temporary storage of the messages to enable transparent messaging between two or more devices.

2. (Original) The middleware communication space of claim 1 wherein the message is in one or more of a SOAP format and a WS series protocol format.

3. (Original) The middleware communication space of claim 1 wherein the middleware storage component holds a plurality of the messages in eXtended Markup Language (XML), the messages in a hierarchical structure.

4. (Original) The middleware communication space of claim 1 wherein the metadata includes: web service routing protocol (WS-Routing) data that defines routing data; and data appropriate for an extended protocol to provide processing information for the protocol agent.

5. (Original) The middleware communication space of claim 1 wherein the middleware communication space provides one or more of message caching, transferring and routing.

6. (Previously presented) The middleware communication space of claim 1 wherein the messages are organized into a plurality of data fields including at least one or more of:

an expiration time data field identifying the expiration of the message in absolute time such that data are invalid after the identified time;

a hop limitation data field providing an upper bound of hops that a message can be transferred, the upper bound decreasing by one after a successful transmission;

a timestamp data field providing a absolute time marking creation time of the message;

a namespace data field identifying a subspace in which the message is placed;

an administration domain data field identifying a domain to which the message is restricted, the administration domain data field defining a physical bound of devices which share a same administration privilege;

a relatedness data field specifying a topic to which the message is related, the relatedness providing a relationship attribute to define an action when two or more messages are related to the topic;

a priority data field defining a priority of the message; and

a property data field providing an extensible component for the distributed application to define application-specific properties with the message.

7. (Original) The middleware communication space of claim 6 wherein the messages are organized into at least three of the data fields.

8. (Original) The middleware communication space of claim 6 wherein the messages are organized into at least six of the data fields.

9-18. (Withdrawn).